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22879 7590 01/02/2009

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

CORDRAY, DENNIS R

ART UNIT

PAPER NUMBER

1791

DATE MAILED: 01/02/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/817,141

04/02/2004

John L. Stoffel

200400537-1

1498

TITLE OF INVENTION: PRINT MEDIA AND METHODS OF MAKING PRINT MEDIA

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/02/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22879 7590 01/02/2009

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/817,141 04/02/2004 John L. Stoffel 200400537-1 1498

TITLE OF INVENTION: PRINT MEDIA AND METHODS OF MAKING PRINT MEDIA

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 04/02/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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CORDRAY, DENNIS R 1791 162-164600

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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EXAMINER

CORDRAY, DENNIS R

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 355 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 355 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/817,141	STOFFEL ET AL.	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the communication of 9/22/08 and telephonic communications of 12/16/08 and 12/17/08.
2. ☒ The allowed claim(s) is/are 55-67 and 69-83.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>4/2/2004</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other ____. |
|--|---|

/Dennis Cordray/
Examiner, Art Unit 1791

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in telephone interviews with Carol Mintz on 12/16/2008 and 12/17/2008.

The application has been amended as follows:

The claims have been amended according to the following claim listing below dated December 17, 2008, and which was requested by the Examiner.

Appl. No. 10/817,141
Amdt. dated December 17, 2008

REQUESTED BY EXAMINER

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

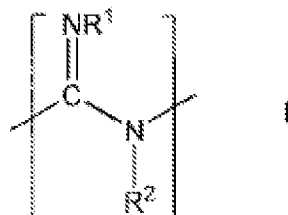
1.-54. (Canceled).

55. (Currently Amended) A method of forming print media, comprising:
providing a fibrous material including a plurality of fibers;
introducing a guanidine polymer component and a metallic salt to the
fibrous material, wherein said guanidine polymer component
contains a cationic guanidine polymer compound or salt thereof,
and wherein the metallic salt is selected from the group consisting
of sodium chloride, calcium chloride, calcium nitrate, and
magnesium chloride;
mixing the guanidine polymer component and the metallic salt with the
fibrous material;
forming a substrate having a surface and a fibrous component comprising
said plurality of fibers, wherein the guanidine polymer component
and the metallic salt are disposed within and among said fibers,
wherein the cationic guanidine polymer compound is selected from the
group consisting of polymers containing at least two monomer
groups described by structural formula (I), polymers including at
least two monomer groups described by structural formula (II), and
guanidine oligomers or guanidine derivative compounds described
by any of structural formulas (III)-(VIII),
wherein structural formula (I) is:

Art Unit: 1791

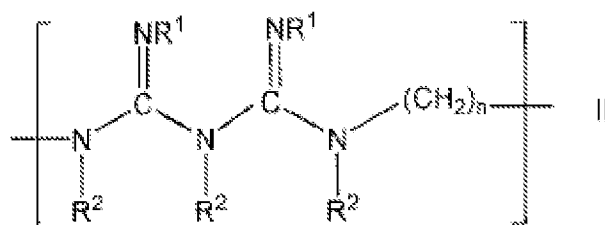
Appl. No. 10/817,141
Amdt. dated December 17, 2008

REQUESTED BY EXAMINER



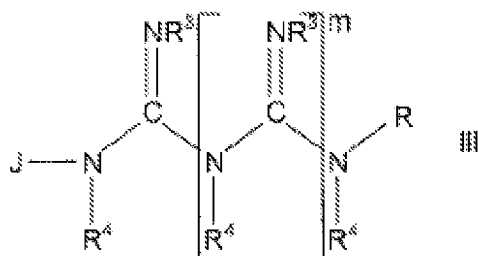
wherein, in formula (I), R^1 is hydrogen or a lower alkyl and R^2 is hydrogen, an alkyl, an alkoxy, or a hydroxyl-substituted alkoxy;

wherein structural formula (II) is:



wherein, in formula (II), "n" is an integer in the range of 1 to 10, R^1 is hydrogen or a lower alkyl and R^2 is hydrogen, an alkyl, an alkoxy, or a hydroxyl-substituted alkoxy;

wherein structural formula (III) is:



wherein, in formula (III), "n" and "m" are each independently is an integer from 1-4, "J", "Q", and "Z" are each independently is a monocarbocyclic or bicyclic carbocyclic aromatic group or phenyl group, "G" is a bivalent $\text{C}_1\text{-C}_{12}$ branched chain alkyl,

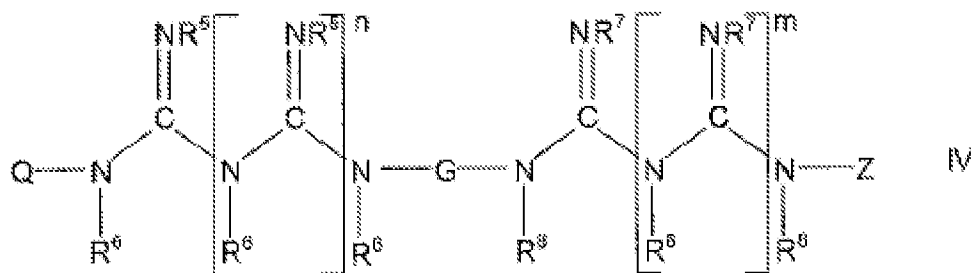
Art Unit: 1791

Appl. No. 10/817,141
Amdt. dated December 17, 2008

REQUESTED BY EXAMINER

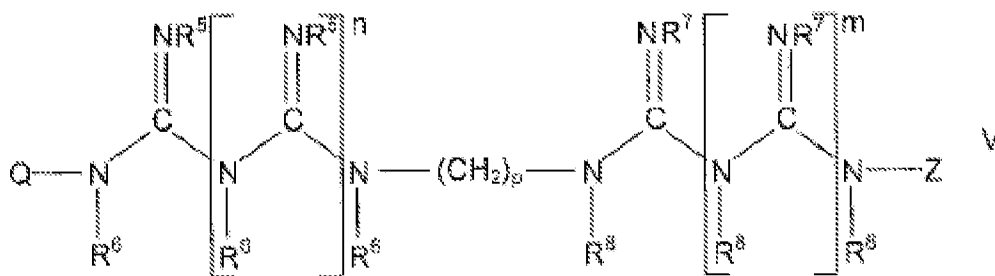
alkenyl or alkynyl linking group; each "R" is a branched chain alkyl, alkenyl, alkynyl or alkanoyl group, each R^3 , R^6 and R^7 are each is independently hydrogen or a lower alkyl, while each R^4 , R^5 and R^8 are each is independently hydrogen, alkyl, alkoxy or hydroxyl- substituted alkyl;

wherein structural formula (IV) is:



wherein, in formula (IV), "n" and "m" are each independently an integer from 1-4, "Q", and "Z" are each independently a monocarbocyclic or bicyclic carbocyclic aromatic group or phenyl group, "G" is a bivalent C_1 - C_{12} branched chain alkyl, alkenyl or alkynyl linking group, "R" is branched chain alkyl, alkenyl, alkynyl or alkanoyl group, R^3 , R^6 and R^7 are each independently hydrogen or a lower alkyl, while R^4 , R^5 and R^8 are each independently hydrogen, alkyl, alkoxy or hydroxyl- substituted alkyl;

wherein structural formula (V) is:



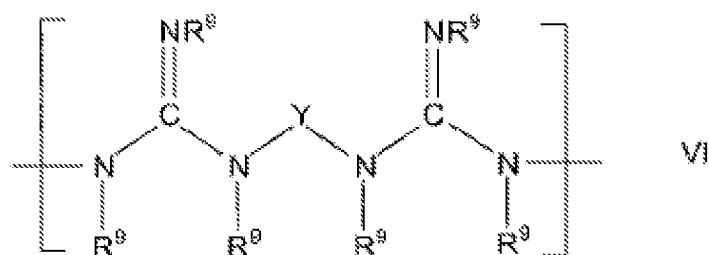
Art Unit: 1791

Appl. No. 10/817,141
Amdt. dated December 17, 2008

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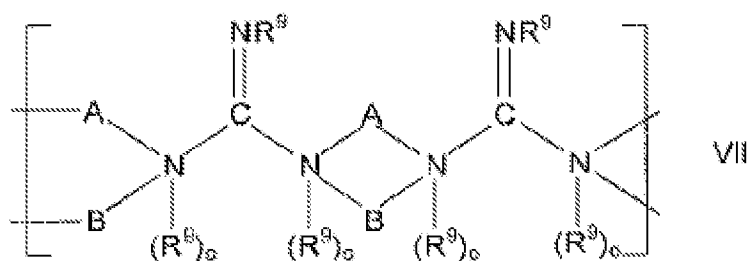
wherein "n" and "m" are each independently an integer from 1-4, "p" is an integer from 4-8, each of "Q" and "Z" is a phenyl group substituted in the para position by a halo group, R⁵ and R⁷ are each independently hydrogen or a lower alkyl, while R⁶[[,]] and R⁸ are each independently hydrogen, alkyl, alkoxy or hydroxyl- substituted alkyl;

wherein structural formula (VI) is:



wherein "Y" is a C₃₋₁₈ hydrocarbyl group having at least one interrupting group selected from the group consisting of -O-, -S-, -NH-, -C(=O)-; each R⁹ is independently hydrogen or a substituted alkyl or substituted alkoxy wherein the substituents are selected from the group consisting of hydroxy, C₁₋₄-alkoxy, halogen, nitro, amino, substituted amino, and acid groups; and subscript "n" is 0-4;

wherein structural formula (VII) is:



Art Unit: 1791

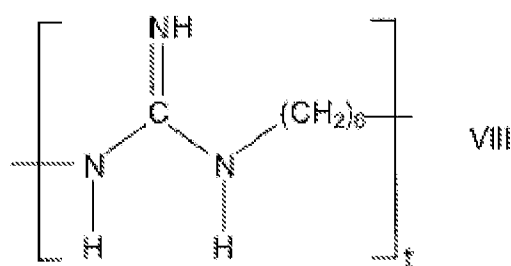
Appl. No. 10/817,141

Amdt. dated December 17, 2008

REQUESTED BY EXAMINER

wherein "A" and "B" are each a hydrocarbyl group or a hydrocarbyl group including a hetero atom; each R^9 is independently hydrogen or a substituted alkyl or substituted alkoxy wherein the substituents are selected from the group consisting of hydroxy, C₁₋₄-alkoxy, halogen, nitro, amino, substituted amino, and acid groups; and subscript "o" is 0 or 1;

wherein structural formula (VIII) is:



wherein "t" is 2 to 100.

56. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound contains at least two monomer units, wherein each said monomer unit is described by structural formula (I).

57. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound contains at least two monomer units, wherein each said monomer unit is described by structural formula (II).

58. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound is described by structural formula (III).

59. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound is described by structural formula (IV).

Art Unit: 1791

Appl. No. 10/817,141
Amdt. dated December 17, 2008

REQUESTED BY EXAMINER

60. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound is described by structural formula (V).

61. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound includes at least one group of structural formula (VI).

62. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound is described by structural formula (VII).

63. (Previously presented) The method of claim 55, wherein the cationic guanidine polymer compound is described by structural formula (VIII).

64. (Previously presented) The method of claim 63 wherein said cationic guanidine polymer component comprises a mixture of cationic guanidine polymers of different chain lengths in the range of $t = 2-200$, wherein each polymer is described by structural formula (VIII).

65. (Currently amended) The method of claim 55, wherein the metallic salt is ~~selected from the group consisting of sodium chloride, aluminum chloride, calcium chloride, calcium nitrate, and magnesium chloride.~~

66. (Currently amended) The method of claim 55, wherein mixing the cationic guanidine polymer compound or salt thereof and the metallic salt with ~~the~~ the fibrous component comprises incorporating an amount of said guanidine polymer compound sufficient to yield about 0.1 to about 3 grams per meter squared in the substrate.

67. (Previously presented) The method of claim 55, wherein mixing the cationic guanidine polymer compound or salt thereof and the metallic salt with the fibrous component comprises incorporating an amount of said metallic salt

Art Unit: 1791

Appl. No. 10/817,141
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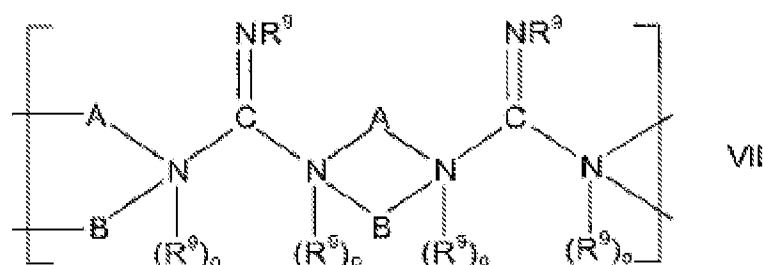
REQUESTED BY EXAMINER

sufficient to yield about 0.001 to about 3 grams per meter squared in the substrate.

68. (Canceled)

69. (Previously presented) A print medium comprising:

a substrate comprising a fibrous component containing fibers, a metallic salt, and a cationic guanidine polymer compound described by structural formula (VII),



wherein "A" and "B" are each a hydrocarbyl group or a hydrocarbyl group including a hetero atom; each R^9 is independently hydrogen or a substituted alkyl or substituted alkoxy wherein the substituents are selected from the group consisting of hydroxy, C_{1-4} -alkoxy, halogen, nitro, amino, substituted amino, and acid groups; and subscript "o" is 0 or 1;

or a salt thereof, wherein said cationic guanidine polymer compound and said metallic salt are each disposed within and among said fibers.

70. (Previously presented) The print medium of claim 69, wherein said substrate contains the cationic guanidine polymer compound, or salt thereof, in an amount of about 0.1 to about 3 grams per meter squared.

Art Unit: 1791

Appl. No. 10/817,141
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71. (Previously presented) The print medium of claim 69, wherein said substrate contains the metallic salt in an amount of about 0.001 to about 3 grams per meter squared.

72. (Previously presented) The print medium of claim 69, wherein the metallic salt is selected from the group consisting of sodium chloride, aluminum chloride, calcium chloride, calcium nitrate, and magnesium chloride.

73. (Previously presented) The print medium of claim 69, wherein the metallic salt is sodium chloride.

74. (Previously presented) The print medium of claim 69, wherein the metallic salt is aluminum chloride.

75. (Previously presented) The print medium of claim 69, wherein the metallic salt is calcium chloride.

76. (Previously presented) The print medium of claim 69, wherein the metallic salt is calcium nitrate.

77. (Previously presented) The print medium of claim 69, wherein the metallic salt is magnesium chloride.

78. (Previously presented) The print medium of claim 69 further comprising a surface sizing composition deposited on said substrate, wherein said surface sizing composition comprises a cationic guanidine polymer compound.

79. (Previously presented) The print medium of claim 69, wherein the substrate is selected from the group consisting of printing paper, writing paper, drawing paper and photobase paper.

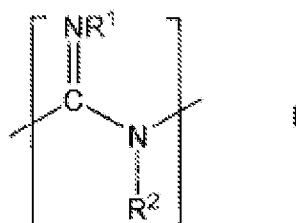
Art Unit: 1791

Appl. No. 10/817,141

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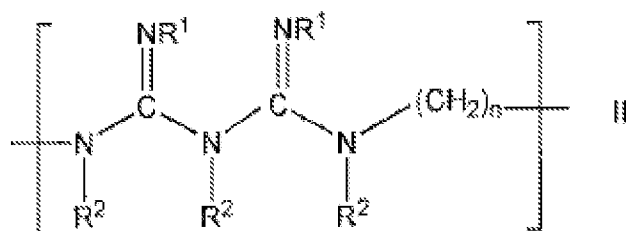
REQUESTED BY EXAMINER

80. (Previously presented) A print medium comprising:
 a substrate containing a surface and a fibrous component containing fibers
 and a cationic guanidine polymer compound containing at least two
 monomers, each said monomer described by structural formula (I)
 or (II), or a salt thereof, and sodium chloride are each disposed
 within and around said fibers in said fibrous component,
 wherein structural formula (I) is:



wherein, in formula (I), R^1 is hydrogen or a lower alkyl and R^2 is
 hydrogen, an alkyl, an alkoxy, or a hydroxyl-substituted
 alkoxy; and

wherein structural formula (II) is:



wherein, in formula (II), "n" is an integer in the range of 1 to 10, R^1 is
 hydrogen or a lower alkyl and R^2 is hydrogen, an alkyl, an
 alkoxy, or a hydroxyl-substituted alkoxy.

81. (Previously presented) The print medium of claim 80 wherein said cationic
 guanidine polymer compound contains at least two monomers, each said
 monomer described by structural formula (I) wherein R^1 is hydrogen and
 R^2 is hydrogen.

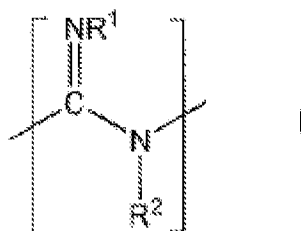
Art Unit: 1791

Appl. No. 10/817,141

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82. (Previously presented) The print medium of claim 80 wherein said cationic guanidine polymer compound contains at least two monomers, each said monomer described by structural formula (II) wherein "n" is 6, R¹ is hydrogen and R² is hydrogen.
83. (New) A method of forming print media, comprising:
providing a fibrous material including a plurality of fibers;
introducing a guanidine polymer component and a metallic salt to the fibrous material, wherein said guanidine polymer component contains a cationic guanidine polymer compound or salt thereof;
mixing the guanidine polymer component and the metallic salt with the fibrous material;
forming a substrate having a surface and a fibrous component comprising said plurality of fibers, wherein the guanidine polymer component and the metallic salt are disposed within and among said fibers, wherein the cationic guanidine polymer compound is selected from the group consisting of polymers containing at least two monomer groups described by structural formula (I), polymers including at least two monomer groups described by structural formula (II), and guanidine oligomers or guanidine derivative compounds described by any of structural formulas (III)-(VIII),
wherein structural formula (I) is:



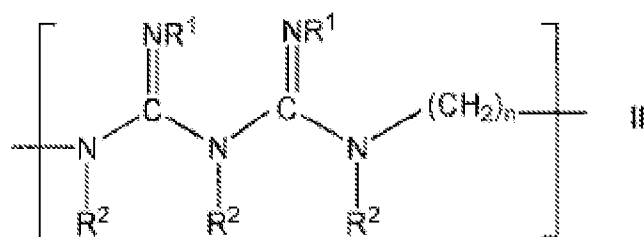
Art Unit: 1791

Appl. No. 10/817,141
Amdt. dated December 17, 2008

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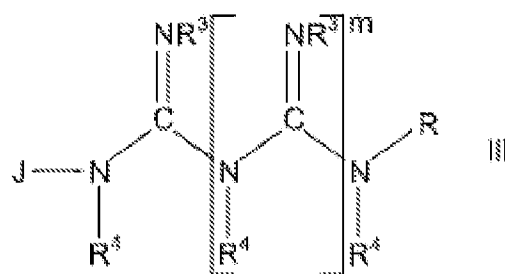
wherein, in formula (I), R^1 is hydrogen or a lower alkyl and R^2 is hydrogen, an alkyl, an alkoxy, or a hydroxyl-substituted alkoxy;

wherein structural formula (II) is:



wherein, in formula (II), "n" is an integer in the range of 1 to 10, R^1 is hydrogen or a lower alkyl and R^2 is hydrogen, an alkyl, an alkoxy, or a hydroxyl-substituted alkoxy;

wherein structural formula (III) is:



wherein, in formula (III), "m" is an integer from 1-4, "J" is a monocarbocyclic or bicyclic carbocyclic aromatic group or phenyl group, each "R" is a branched chain alkyl, alkenyl, alkynyl or alkanoyl group, each R^3 is independently hydrogen or a lower alkyl, while each R^4 is independently hydrogen, alkyl, alkoxy or hydroxyl-substituted alkyl;

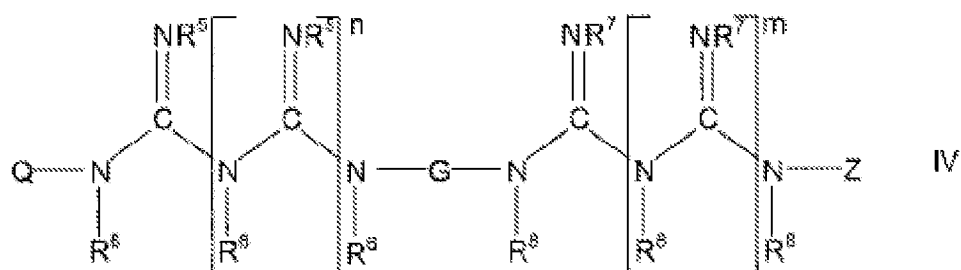
Art Unit: 1791

Appl. No. 10/817,141

Amdt. dated December 17, 2008

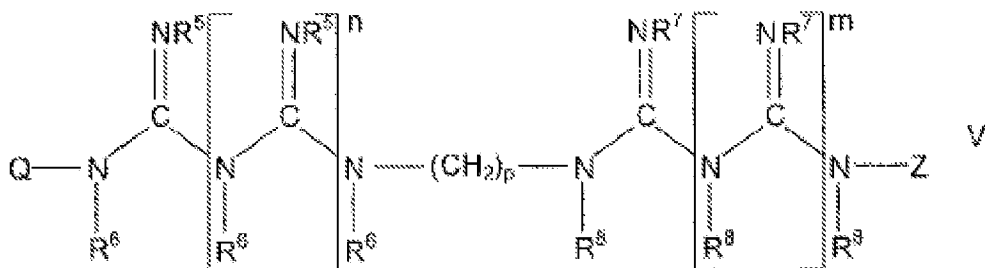
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wherein structural formula (IV) is:



wherein, in formula (IV), "n" and "m" are each independently an integer from 1-4, "Q", and "Z" are each independently a monocarbocyclic or bicyclic carbocyclic aromatic group or phenyl group, "G" is a bivalent C₁-C₁₂ branched chain alkyl, alkenyl or alkynyl linking group, R⁶ and R⁷ are each independently hydrogen or a lower alkyl, while R⁶[[.]] and R⁸ are each independently hydrogen, alkyl, alkoxy or hydroxyl-substituted alkyl;

wherein structural formula (V) is:



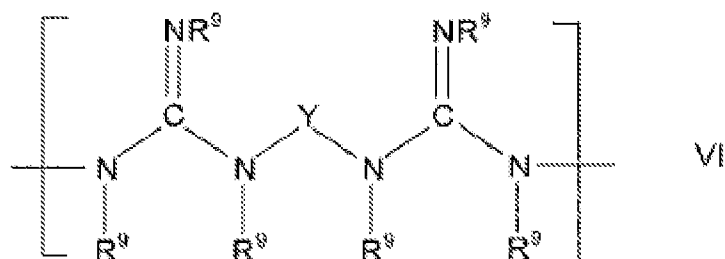
wherein "n" and "m" are each independently an integer from 1-4, "p" is an integer from 4-8, each of "Q" and "Z" is a phenyl group substituted in the para position by a halo group, R⁶ and R⁷ are each independently hydrogen or a lower alkyl, while R⁶[[.]] and R⁸ are each independently hydrogen, alkyl, alkoxy or hydroxyl-substituted alkyl;

Art Unit: 1791

Appl. No. 10/817,141
Amdt. dated December 17, 2008

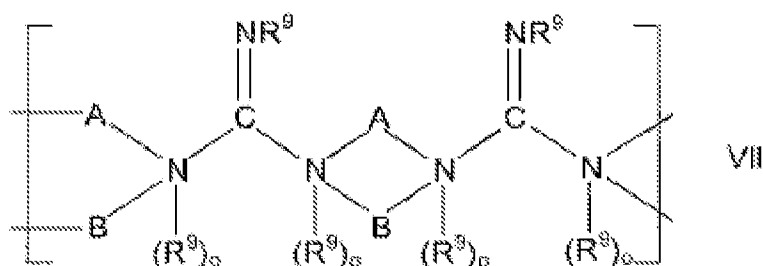
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wherein structural formula (VI) is:



wherein "Y" is a C₃₋₁₆ hydrocarbyl group having at least one interrupting group selected from the group consisting of -O-, -S-, -NH-, -C(=O)-; each R⁹ is independently hydrogen or a substituted alkyl or substituted alkoxy wherein the substituents are selected from the group consisting of hydroxy, C₁₋₄-alkoxy, halogen, nitro, amino, substituted amino, and acid groups;

wherein structural formula (VII) is:

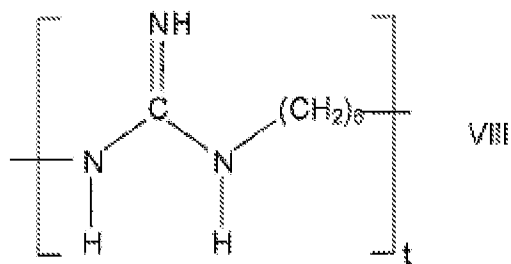


wherein "A" and "B" are each a hydrocarbyl group or a hydrocarbyl group including a hetero atom; each R⁹ is independently hydrogen or a substituted alkyl or substituted alkoxy wherein the substituents are selected from the group consisting of hydroxy, C₁₋₄-alkoxy, halogen, nitro, amino, substituted amino, and acid groups; and subscript "o" is 0 or 1;

Appl. No. 10/817,141
Amdt. dated December 17, 2008

REQUESTED BY EXAMINER

wherein structural formula (VIII) is:



wherein "t" is 2 to 100; and

applying a surface sizing composition containing said cationic guanidine polymer compound or salt thereof and a metallic salt onto said substrate.

The following is an examiner's statement of reasons for allowance:

Regarding Claims 55-67 and 83, the nearest prior art, Cousin et al discloses adding guanidine polymers and a polyvalent metal salt to a paper after it has been dewatered or has left the wire. The prior art fails to teach addition of the polymer and salt to the wet end prior to formation of a paper. Cousin et al instead teaches that the cationic polymer and metal salt cannot be suitably added to the paper at the wet end of the process or their effectiveness is compromised (col 6 lines 52-56). None of the prior art teaches or suggests both internal addition and external coating using the guanidine polymer and metal salt. One of ordinary skill in the art would not have been motivated to combine both processes in view of the warning by Cousin et al.

Regarding Claims 69-79, the claimed polymers are not disclosed in the prior art and would not be obvious to one of ordinary skill over the guanidine species that are disclosed.

Regarding Claims 80-82, the prior art discloses using a polyvalent metallic salt with the guanidine polymers, whereas sodium chloride is a monovalent salt and would not be expected to function similarly to a polyvalent salt (see Waller, Jr, 6537650, col 3, lines 28-51; col 5, lines 61-64; col 6, lines 19-22).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

/Dennis Cordray/
Examiner, Art Unit 1791